

OMS Ping
Version 3.0
May 13th, 2010

1 Descriptions of Function

All prior work (intellectual property of the company or individual) or proprietary (non-publicly available) work should be so noted.

1.1 Function Name

OMS Ping of Meters

1.2 Function ID

Identification number of the function

1.3 Brief Description

With the deployment of Smart Grid and AMI the utility has the ability for network operators to proactively manage large and complex networks in a more advance way. Today's AMI technology capabilities allow the network operators to:

- Ability to Ping any Device or Meter at any time
- Ability to Ping a meter & verify a no-light call
- Ability to evaluate the entire circuit or feeder
- Provide the network operator with prediction validation
- Provide additional information for locating the faulted device
- Outage restoration verification
- Identification of potential nested outages
- Improved Network Operator System Visualization

Once the Operations Management System (OMS) software is integrated with the AMI system the network operations personnel can automatically ping the customer and verify the status of the meter. If the customer's meter pings in-service the call & order can be cancelled which avoids a crew being dispatched to the site.

1.4 Narrative

The *OMS* issues a ping request to the *AMI Head-End* through the *Meter Outage Processor (MOP)*. The ping request travels through the *AMI Head-End* to the *NIC ESP* card on the *Smart Meter*. The *NIC ESP* sends the ping response back up through the *AMI Network* to the *AMI Head-End*. The *AMI Head-End* sends the meter reading to the *MOP* where it is relayed to the *OMS*.

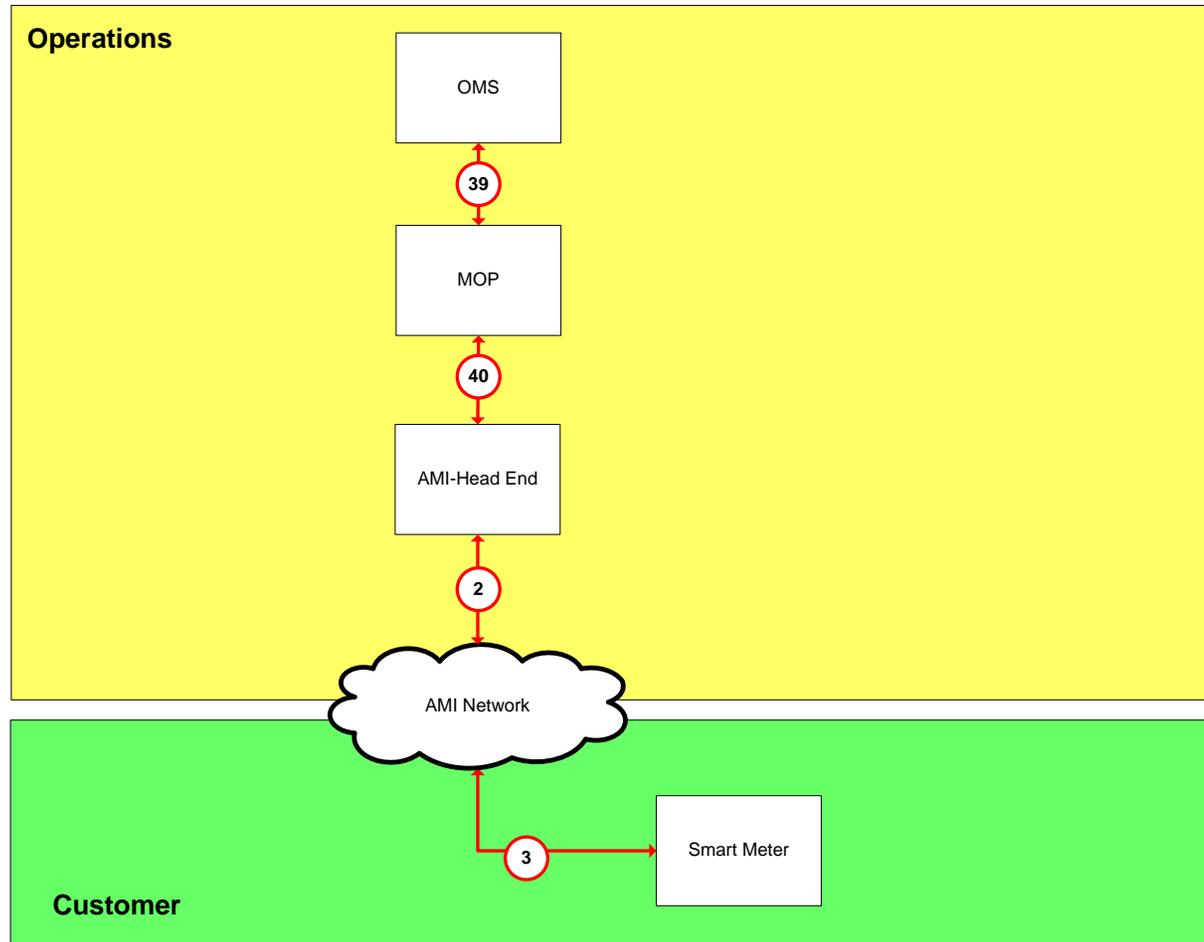


Figure 1-1
Context Diagram for Outage Management System Ping

1.5 Actor (Stakeholder) Roles

<i>Grouping (Community)</i>		<i>Group Description</i>
<i>Actor Name</i>	<i>Actor Type (person, organization, device, system, or subsystem)</i>	<i>Actor Description</i>
OMS	Sub-System	Operational Data Store is a sub-system of The Utility's data warehouse, which stores operational data i.e. all metering events and messages.
MOP	Sub-System	Meter Outage Processor is a sub-system of the OMS - Meter event filter that determines whether the outages are spurious events or real outages.
AMI Head-End	System	The AMI Head-End is the back office system than controls the Advanced Metering Infrastructure.
NIC - ESP	Device	AMI side of the network interface card within the smart meter.
DDC		

1.6 Information exchanged

<i>Information Object Name</i>	<i>Information Object Description</i>
Ping	Data request

<i>Information Object Name</i>	<i>Information Object Description</i>
Ping Request	Data request from a specific smart meter or group of smart meters
Ping Response	Data response from a specific smart meter or group of smart meters

1.7 Activities/Services

<i>Activity/Service Name</i>	<i>Activities/Services Provided</i>

1.8 Contracts/Regulations

<i>Contract/Regulation</i>	<i>Impact of Contract/Regulation on Function</i>

<i>Policy</i>	<i>From Actor</i>	<i>May</i>	<i>Shall Not</i>	<i>Shall</i>	<i>Description (verb)</i>	<i>To Actor</i>

<i>Constraint</i>	<i>Type</i>	<i>Description</i>	<i>Applies to</i>

2 Step by Step Analysis of Function

Describe steps that implement the function. If there is more than one set of steps that are relevant, make a copy of the following section grouping (Steps to implement function, Preconditions and Assumptions, Steps normal sequence, Post-conditions) and provide each copy with its own sequence name.

2.1 Steps to implement function – Name of Sequence

Name of this sequence.

2.1.1 Preconditions and Assumptions

<i>=Actor/System/Information/Contract</i>	<i>Preconditions or Assumptions</i>

2.1.2 Steps – Name of Sequence

Describe the normal sequence of events, focusing on steps that identify new types of information or new information exchanges or new interface issues to address. Should the sequence require detailed steps that are also used by other functions, consider creating a new “sub” function, then referring to that “subroutine” in this function. Remember that the focus should be less on the algorithms of the applications and more on the interactions and information flows between “entities”, e.g. people, systems, applications, data bases, etc. There should be a direct link between the narrative and these steps.

#	Event	Primary Actor	Name of Process/Activity	Description of Process/Activity	Information Producer	Information Receiver	Name of Info Exchanged	Additional Notes	IECSA Environment
#	<i>Triggering event? Identify the name of the event.¹</i>	<i>What other actors are primarily responsible for the Process/Activity? Actors are defined in section0.</i>	<i>Label that would appear in a process diagram. Use action verbs when naming activity.</i>	<i>Describe the actions that take place in active and present tense. The step should be a descriptive noun/verb phrase that portrays an outline summary of the step. "If ...Then...Else" scenarios can be captured as multiple Actions or as separate steps.</i>	<i>What other actors are primarily responsible for Producing the information? Actors are defined in section0.</i>	<i>What other actors are primarily responsible for Receiving the information? Actors are defined in section0. (Note – May leave blank if same as Primary Actor)</i>	<i>Name of the information object. Information objects are defined in section 1.6</i>	<i>Elaborate architectural issues using attached spreadsheet. Use this column to elaborate details that aren't captured in the spreadsheet.</i>	<i>Reference the applicable IECSA Environment containing this data exchange. Only one environment per step.</i>
1.1	DDC manually initiates a ping thru OMS	OMS	On-Demand Ping	DDC pings one or more Smart Meters via the OMS	DDC	OMS	Ping		
1.2		OMS	OMS sends ping request	OMS sends Ping Request to MOP	OMS	MOP	Ping Request	61968	
1.3		MOP	MOP sends ping request	MOP sends Ping Request to AMI Head-End via ESB	MOP	AMI Head-End	Ping Request	61968	
1.4		AMI Head-End	AMI Head-End sends ping request	AMI Head-End sends Ping Request to AMI Network	AMI Head-End	AMI Network	Ping Request	Use AMI Network Use Case	
1.5		AMI Network	AMI Network sends ping request	AMI Network sends Ping Request to NIC - ESP	AMI Network	NIC - ESP	Ping Request		
1.6		NIC - ESP	NIC – ESP responds	NIC – ESP responds to Ping Request	NIC - ESP	NIC - ESP	Ping Request		

¹ Note – A triggering event is not necessary if the completion of the prior step – leads to the transition of the following step.

#	Event	Primary Actor	Name of Process/Activity	Description of Process/Activity	Information Producer	Information Receiver	Name of Info Exchanged	Additional Notes	IECSA Environment
1.7		NIC - ESP	NIC - ESP sends ping response	NIC - ESP sends Ping Response to AMI Network	NIC - ESP	AMI Network	Ping Response	Use AMI Network Use Case	
1.8		AMI Network	AMI Network sends ping response	AMI Network sends Ping Response to AMI Head-End	AMI Network	AMI Head-End	Ping Response		
1.9		AMI Head-End	AMI Head-End sends ping response	AMI Head-End sends ping response to MOP	AMI Head-End	MOP	Ping Response	61968	
1.10		MOP	MOP sends ping response	MOP sends ping response to OMS	MOP	OMS	Ping Response	61968	

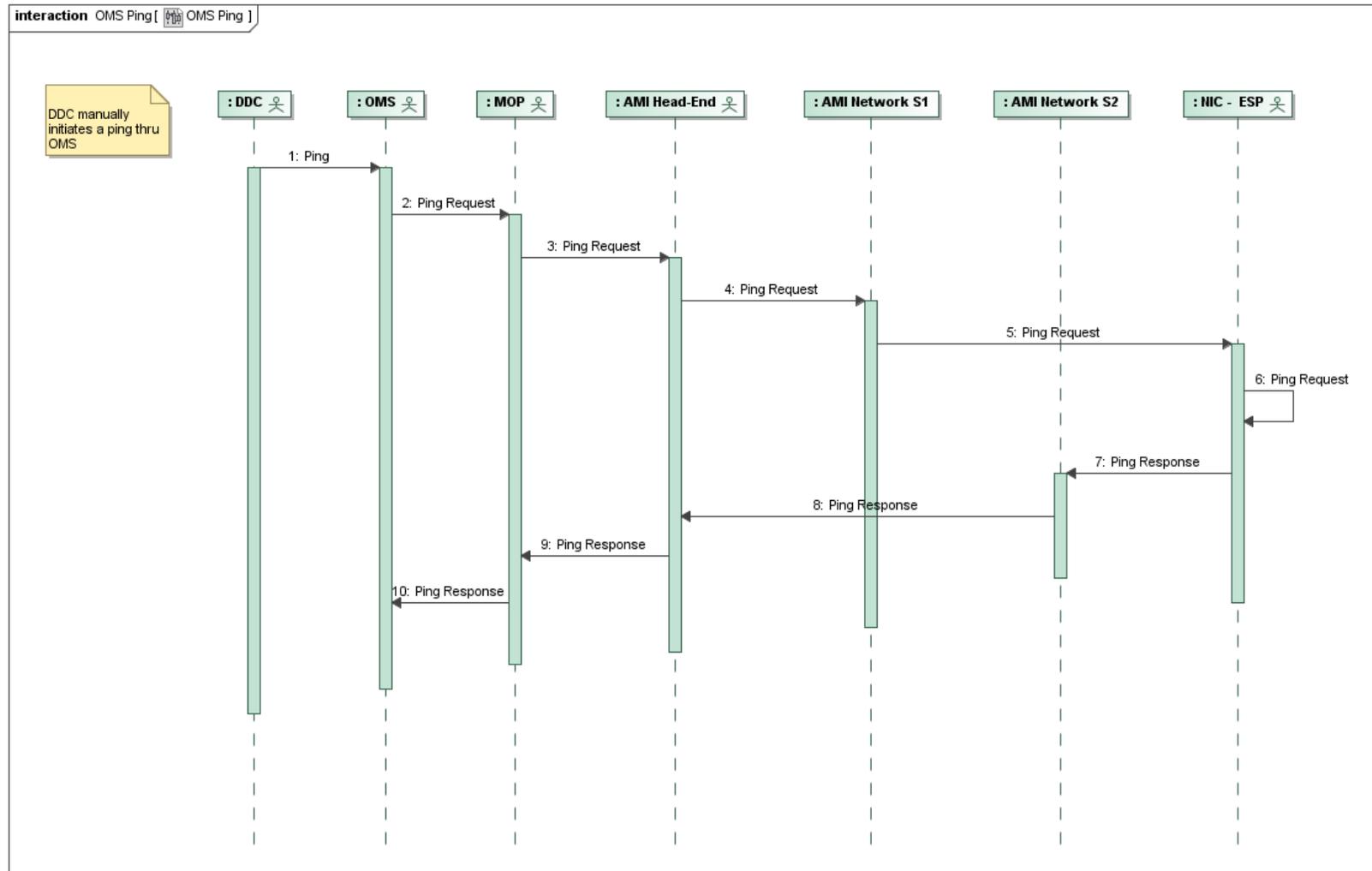
2.1.3 Post-conditions and Significant Results

<i>Actor/Activity</i>	<i>Post-conditions Description and Results</i>

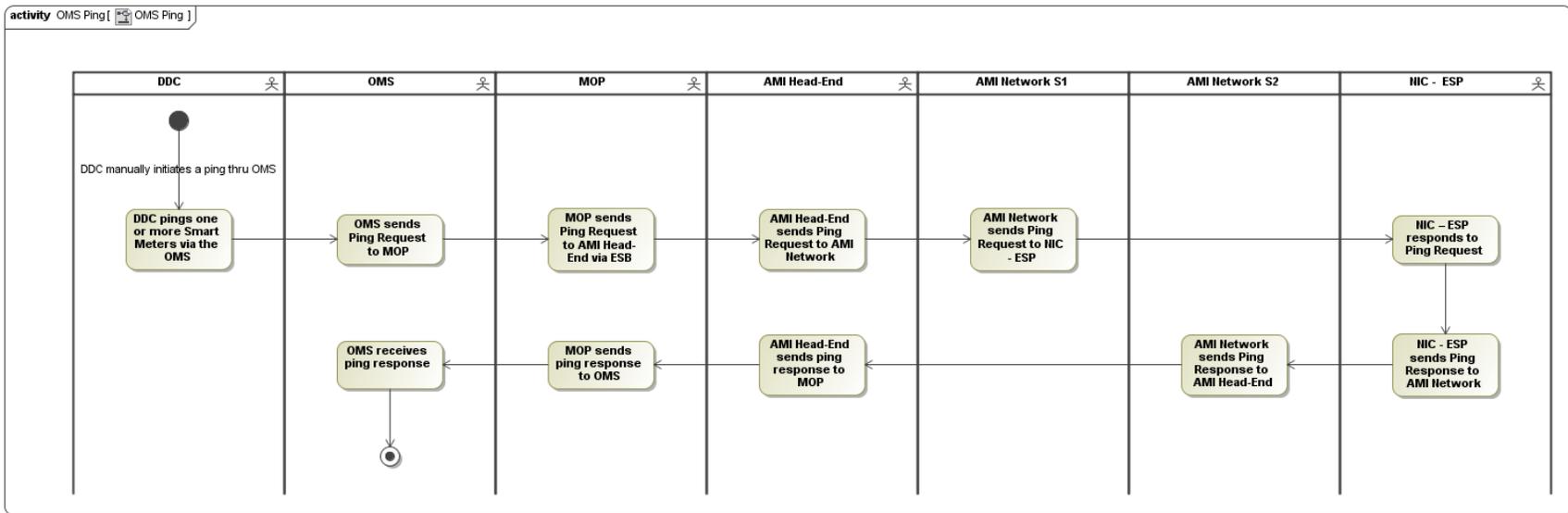
2.2 Architectural Issues in Interactions

Elaborate on all architectural issues in each of the steps outlined in each of the sequences above. Reference the Step by number. Double click on the embedded excel file – record the changes and save the excel file (this updates the embedded attachment).

2.3 Diagram



OMS Ping Sequence Diagram



OMS Ping Activity Diagram

3 Auxiliary Issues

3.1 References and contacts

ID	Title or contact	Reference or contact information
[1]		
[2]		

3.2 Action Item List

ID	Description	Status
[1]		

[2]		
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3.3 Revision History

No	Date	Author	Description
2.0	4-10-2020	John J. Simmins	Created Brief Description and Narrative. Filled in blanks.
3.0	5-13-2010	Brian D. Green	Revisions and add diagrams